

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Claims 1–63 (cancelled)

Claim 64 (new): A conductive fluid jet cutting system for modifying a workpiece comprising:

 a dispenser, comprising an electrically conductive crucible, for dispensing a jet stream of an electrically conductive fluid; and

 a power source including at least a first electrical connection to the fluid within the dispenser and a second electrical connection to the jet stream external to the dispenser.

Claim 65 (new): The system of claim 64 wherein the crucible heats the fluid.

Claim 66 (new): The system of claim 64 wherein the dispenser comprises a jetting head.

Claim 67 (new): The system of claim 64 wherein the crucible comprises a top, a sidewall, and a bottom, wherein the top comprises an inlet and the bottom comprises an outlet.

Claim 68 (new): The system of claim 64 wherein the crucible comprises one of boron nitride-zirconia-silicon carbide, Ytria-Stabilized-Zirconia, Magnesia-Stabilized-Zirconia, Calcia-Stabilized-Zirconia boron nitride, Cubic Zirconia, alumina, silica, silica composites, zirconium diboride, and graphite.

Claim 69 (new): The system of claim 64 further comprising a heater coupled to the crucible.

Claim 70 (new): The system of claim 69 further comprising a second power supply electrically coupled to the heater.

Claim 71 (new): The system of claim 66 wherein the jetting head comprises an inlet for receiving a feed stock of the conductive fluid.

Claim 72 (new): The system of claim 64 wherein the conductive fluid comprises mild steel, aluminum, aluminum alloy, tin, stainless steel, iron, cast iron, tool steel, copper, zinc, gold, silver, or platinum.

Claim 73 (new): The system of claim 66 wherein the jetting head comprises a pressure containment vessel.

Claim 74 (new): The system of claim 66 wherein the jetting head comprises an electrode disposed inside the crucible for establishing an electrical connection with the jet stream.

Claim 75 (new): The system of claim 74 wherein said electrical connection comprises a feedstock of the conductive fluid.

Claim 76 (new): The system of claim 66 wherein the jetting head comprises an exit orifice.

Claim 77 (new): The system of claim 66 wherein the jetting head further comprises a nozzle.

Claim 78 (new): The system of claim 77 wherein the nozzle comprises a disk having a through orifice.

Claim 79 (new): The system of claim 78 wherein the disk comprises a material selected from one of Ytria-Stablized-Zirconia, Magnesia-Stabilized-Zirconia, Calcia-Stabilized-Zirconia, boron nitride-zirconia-silicon carbide, boron nitride, Cubic Zirconia, Alumina, Silica, Silica Composites, Zirconium Diboride.

Claim 80 (new): The system of claim 78 wherein the through orifice comprises a circular cross section.

Claim 81 (new): The system of claim 69 wherein the heater comprises one of an AC resistance heater, a DC resistance heater, an induction heater, or a combustion burner-heater arrangement.

Claim 82 (new): An electrically conductive metallic fluid jet cutting system for modifying a workpiece comprising:

a dispenser, comprising a jetting head, comprising an electrically conductive crucible and at least two inlets for receiving at least one feedstock of an electrically conductive metallic material, wherein the dispenser dispenses a jet stream of an electrically conductive metallic fluid; and

a power source electrically coupled to the jet stream for providing electrical current to the jet stream.